

packet 2000 bits or lower depending on the actual transmission rate. Equation (1) and (2) were used to estimate the value of success probability $SP_{f,i}$, with $R = 28$.

The performance of any method or system for packet selection largely relies upon the threshold h used. Therefore, the relationship of the performance and the chosen threshold h will now be explained under various network conditions. Specifically, the value of p_{cc} was varied from 0.01 to 0.91 in steps of 0.1 and the case with $p_{cc} = 0.99$ was also considered. Also, for a fixed p_{cc} , the value of p_{bb} was adjusted to obtain different network loads.

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For each pair of p_{cc} and p_{bb} , the transmission performance was investigated by measuring the output video data's QI using five different thresholds $h = 0.1$ (Fig. 7(a)), 0.5 (Fig. 7(b)), 0.7 (Fig. 7(c)), 0.9 (Fig. 7(d)) and 0.99 (Fig. 7(e)). Figs. 7(a)-7(e) show the results with the QI plotted as a function of system load for different p_{cc} and thresholds h . Each graph corresponds to a fixed threshold h , and for each curve in a graph, p_{cc} is fixed.

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Comparing the data graphs in Figs. 7(a)-7(e), the QI , which indicates the transmission performance, first increases as the threshold h increases, then as the threshold h approaches one, it starts to decrease. This is an expected result because, with a small threshold value h , the packet selection system tends to transmit more packets for each frame before advancing to the next one. This means by the time the system is ready to transmit later frames, it may not have enough time for even their high priority components. Therefore, some high priority packets may not be delivered because the system spent too much time on the earlier lower priority packets. Therefore, the performance of the system may be improved.

As the threshold value h increases, less low priority packets are transmitted which leaves more room for higher priority packets behind them, thus the performance improves and the QI increases. However, if threshold h continues to increase, the system approaches the other extreme state. It becomes more and more likely that only the highest priority layer will be sent, even if some less important packets could have been delivered without affecting the outcome of the future frames. As a result, the